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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/694,019

10/28/2003

Kenichi Takahara

117268

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25944

7590

03/21/2005

OLIFF & BERRIDGE, PLC

P.O. BOX 19928

ALEXANDRIA, VA 22320

EXAMINER

VU, PHU

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,019

Applicant(s)

TAKAHARA ET AL.

Examiner

Phu Vu

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8, 10, 12, 20 and 21 is/are rejected.
7) ☒ Claim(s) 9, 11 and 13-19 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10, 12, 21 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et. al US Publication No. 2002/0018278. Sato teaches an electro-optical device comprising, above a substrate (figure 17 element 10), data lines (figure 2 element 6a) extending in first direction, scanning lines extending (fig. 2 element 3a) in a second direction which intersect the data lines pixel electrodes (fig. 2 element 9a), storage capacitors electrically connected to the TFT (figure 17 element 70), and dielectric films which constitute the storage capacitors being made of a plurality of layers including different materials and also of one of the plurality of layers being made of a material having a higher dielectric constant (figure 17 element 75').

Regarding claim 2, Sato teaches a shielding layer (fig. 17 element 71a') located between the pixel electrode and data line.

Regarding claim 3, the reference teaches a dielectric layer being formed of silicon nitride (see column 13 lines 45-50).

Regarding claim 4, the reference teaches the storage capacitor (fig. 17 element 70) being formed above semiconductor layers (fig. 17 element 1a) and below pixel electrodes (fig. 17 element 9a).

Regarding claim 5, the reference teaches an planarization process on interlayer insulator layers positioned beneath the pixel electrode.

Regarding claim 7, the reference teaches a relay layer (fig. 17 element 71a') being electrically connected to each of the pixel electrodes to one of the pair of electrodes that constitutes the storage electrode.

Regarding claim 8, the shielding layer is also formed of the same film as the relay layer (see figure 17 element 71a').

Regarding claim 10, the shielding layer (fig. 17 element 71a) is formed along the data line and is also wider.

Regarding claim 12, the reference teaches the TFT including semiconductor layers having channel regions which extend in a longitudinal direction (see figure 17 element 3a), an upper light-shielding films covering at least the channel regions of the TFT from the upper side (see figure 17 element 300'), and at least part of the upper light-shielding films being formed in a concave shape in the cross section which is perpendicular to the longitudinal direction of the channel regions as viewed from the channel regions (see fig. 17 element 300'--region directly above 3a).

Regarding claim 20, this claim is identical to claim 1 except for a light shielding film between the data lines and pixel electrodes. The reference teaches a light-shielding film (fig. 17 element 300') disposed between the data lines and pixel electrodes.

Regarding claim 21, this claim is identical to claim 1 except it claims an electronic apparatus comprising the electro-optic device of claim 1. The addition of an

electronic apparatus does not add any structure to claim 1, and an electro-optic device can also be considered an electronic apparatus, therefore this limitation is inherent.

Allowable Subject Matter

Claims 9, 11, 13-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 9, there is no prior art of record that teaches an electro-optic device with a shielding layer located between the pixel electrode and data line made of a transparent conducting material and formed in a mat shape over the entire surface of the substrate.

Regarding claim 11, there is no prior art of record that teaches an electro-optic device with horizontal protrusions protruding from the main body parts in the longitudinal direction at the sides of channel adjacent regions in plan view.

Regarding claim 13, there is no prior art of record that teaches an electro-optic device with surrounding portions extending to surround the semiconductor layers from the main line portions at positions which are separated from the channel regions by a predetermined distance in the second direction in plan view.

Regarding claims 14 and 15, there is no prior art of record that teaches an electro-optic device with vertical protrusions protruding downwardly from the main line portions at positions, which are separated from the channel region by a predetermined distance in plan view.

Regarding claims 16 and 17 there is no prior art of record that teaches main line portions including inside-groove portions which extend in the second direction and are provided inside grooves which are etched in the substrate, and outside groove portions which extend in the second direction and are provided outside grooves.

Regarding claim 18, there is no prior art of record that teaches an electro-optic device with convex portions formed on the base surfaces of the pixel electrodes on the substrate corresponding to the overhanging portions, and the convex portions being regions of gaps between the pixel electrodes, which are adjacent to each other with the scanning lines interposed therebetween in plan view.

Regarding claim 19, there is no prior art of record that teaches an electro-optic device with convex portions formed in regions of gapes between the pixel electrodes which are adjacent to each other in plan view and convex portions having gentle step differences.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 2871

A handwritten signature in black ink, appearing to be 'K. Parker', with a stylized flourish extending to the right.

KENNETH PARKER
PRIMARY EXAMINER